

Computer Architecture Sheet1 Solution

1. What is the difference between DRAM and SRAM in terms of application?

DRAM is used for Main Memory.

SRAM is used for Cache Memory.

2. What is the difference between DRAM and SRAM in terms of characteristics such as speed, size, and cost?

	DRAM	SRAM
Speed	slower	faster
Size	smaller	Larger
Cost	Less expensive	more expensive

3. What are the difference types of ROM?

4. What are the differences among EPROM, EEPROM, and flash memory?

1. PROM (Programmable Read Only Memory)

- Programmed for once using special equipment, and never erased.

2. EPROM (Erasable Programmable Read Only Memory)

-Programmable and erased using ultra violet.

-Erased as a whole.

3. EEPROM (Electrically Erasable Programmable Read Only Memory)

-Programmable and erased using electrical shots.

-Erased byte by byte.

-Can erase a part without another.

4. Flash memory

-Programmable and erased using electrical shots.

-Erased block by block.

- Erased so quick (in a flash).

5. A computer employs RAM chips of 256 x8 and ROM chips of 1024x8. The computer system needs 1K bytes of RAM, 2K bytes

of ROM. Draw the complete diagram for such system. Show how the address is organized.

-Capacity of one RAM chip = 256 bytes = 2^8 bytes.

-Total RAM Capacity = 1K bytes = 2^{10} bytes

→ No of RAM chips needed = $2^{10}/2^8=2^2=4$ RAM chips.

-Capacity of one ROM chip = 1024 bytes = 2^{10} bytes.

-Total RAM Capacity = 2K bytes = 2^{11} bytes

→ No of ROM chips needed = $2^{11}/2^{10}=2^1=2$ ROM chips.

Component	Hexadecimal addresses	Address Bus
RAM1	0000-00FF	0000 0000 xxxx xxxx
RAM2	0100-01FF	0000 0001 xxxx xxxx
RAM3	0200-02FF	0000 0010 xxxx xxxx
RAM4	0300-03FF	0000 0011 xxxx xxxx
ROM1	0800-0BFF	0000 10xx xxxx xxxx
ROM2	0C00-0FFF	0000 11xx xxxx xxxx

